



# Material Safety Data Sheet

Dow Europe GmbH

**Product Name:** DIPHENYL OXIDE PURIFIED

**Issue Date:** 2010/03/10

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Dow Europe GmbH encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. Identification of the substance/preparation and of the company/undertaking

### Product Name

DIPHENYL OXIDE PURIFIED

### Use of the substance/preparation

Raw material for industrial conversion to articles or goods. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative. Raw material for industrial conversion to articles or goods.

### COMPANY IDENTIFICATION

Dow Europe GmbH  
Bachtobelstrasse 3  
Horgen 8810  
Switzerland

Customer Information Number: 0032-3-450-2240

### EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 0049-7227-91-2200

Local Emergency Contact: 91 22 67978600

## 2. Composition/information on ingredients

Component	Amount	Classification:	CAS #	EC #
Diphenyl oxide	100.0 %	N: R51/53	101-84-8	202-981-2

See Section 16 for full text of R-phrases.

## 3. Hazards Identification

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 4. First-aid measures

**Eye Contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Skin Contact:** Wash skin with plenty of water.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Notes to Physician:** If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

**Emergency Personnel Protection:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

## 5. Fire Fighting Measures

**Extinguishing Media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective. Water fog, applied gently may be used as a blanket for fire extinguishment.

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment.

**Special Protective Equipment for Firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

**Unusual Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Hazardous Combustion Products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

## 6. Accidental Release Measures

**Steps to be Taken if Material is Released or Spilled:** Small spills: Absorb with materials such as: Non-combustible material. Large spills: Dike area to contain spill. Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

**Personal Precautions:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental Precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

## 7. Handling and Storage

### Handling

**General Handling:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Storage**

Do not store in: Opened or unlabeled containers. Store in tightly closed container. Store in a dry place. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

## 8. Exposure Controls / Personal Protection

**Exposure Limits**

Component	List	Type	Value
Diphenyl oxide	ACGIH	TWA Vapor.	1 ppm
	ACGIH	STEL Vapor.	2 ppm

**Personal Protection**

**Eye/Face Protection:** Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator.

**Skin Protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Hand protection:** Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Viton. Avoid gloves made of: Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

**Ingestion:** Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

**Engineering Controls**

**Ventilation:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

## 9. Physical and Chemical Properties

<b>Physical State</b>	Solid below freezing point
<b>Color</b>	Colorless
<b>Odor</b>	Floral
<b>Odor Threshold</b>	0.03 ppm <i>Literature</i>
<b>Flash Point - Closed Cup</b>	112 °C <i>Pensky-Martens Closed Cup ASTM D 93</i>
<b>Flammability (solid, gas)</b>	No
<b>Flammable Limits In Air</b>	<b>Lower:</b> 0.7 %(V) <i>Literature</i> Vapor

<b>Autoignition Temperature</b>	<b>Upper:</b> 6 %(V) <i>Literature</i> Vapor 618 °C <i>Literature</i>
<b>Vapor Pressure</b>	760 mmHg @ 257.9 °C <i>Literature</i>
<b>Boiling Point (760 mmHg)</b>	258 °C <i>Literature</i> .
<b>Vapor Density (air = 1)</b>	1 @ 25 °C <i>Literature</i>
<b>Specific Gravity (H2O = 1)</b>	1.070 25 °C/25 °C <i>Literature</i>
<b>Freezing Point</b>	27 °C <i>Literature</i>
<b>Melting Point</b>	Not applicable
<b>Solubility in water (by weight)</b>	20.8 ppm @ 25 °C <i>Literature</i>
<b>pH</b>	Not applicable
<b>Decomposition Temperature</b>	No test data available
<b>Partition coefficient, n-octanol/water (log Pow)</b>	4.21 <i>Measured</i>
<b>Evaporation Rate (Butyl Acetate = 1)</b>	<0.1 <i>Estimated</i> .
<b>Kinematic Viscosity</b>	2.9 cSt @ 30 °C <i>Literature</i>

## 10. Stability and Reactivity

### Stability/Instability

Thermally stable at recommended temperatures and pressures.

**Conditions to Avoid:** Exposure to elevated temperatures can cause product to decompose.

**Incompatible Materials:** Avoid contact with oxidizing materials.

### Hazardous Polymerization

Will not occur.

### Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials.

## 11. Toxicological Information

### Acute Toxicity

#### Ingestion

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

LD50, Rat 3,370 mg/kg

#### Dermal

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit > 5,000 mg/kg

#### Inhalation

Vapor may cause irritation of the upper respiratory tract (nose and throat). Mist may cause irritation of upper respiratory tract (nose and throat). May cause headache and nausea due to odor.

No deaths occurred following exposure to a saturated atmosphere. , Rat

### Serious eye damage/eye irritation

May cause slight eye irritation. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

### Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness. Prolonged contact may cause moderate skin irritation with local redness. May cause more severe response on covered skin (under clothing, gloves). Repeated exposure may cause irritation, even a burn.

### Sensitization

**Skin**

No relevant information found.

**Respiratory**

No relevant information found.

**Repeated Dose Toxicity**

Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

**Chronic Toxicity and Carcinogenicity**

No relevant information found.

**Developmental Toxicity**

Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

**Genetic Toxicology**

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

## 12. Ecological Information

**ENVIRONMENTAL FATE****Movement & Partitioning**

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Potential for mobility in soil is low (Koc between 500 and 2000).

**Henry's Law Constant (H):** 2.2E-04 atm\*m3/mole; 25 °C Estimated.

**Partition coefficient, n-octanol/water (log Pow):** 4.21 Measured

**Partition coefficient, soil organic carbon/water (Koc):** 820 - 1,950 Estimated.

**Bioconcentration Factor (BCF):** 196 - 470; fish; Measured

**Persistence and Degradability**

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

**OECD Biodegradation Tests:**

Biodegradation	Exposure Time	Method
6.3 %	28 d	OECD 301C Test

**Theoretical Oxygen Demand:** 2.63 mg/mg

**ECOTOXICITY**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

**Fish Acute & Prolonged Toxicity**

LC50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 4.2 mg/l

**Aquatic Invertebrate Acute Toxicity**

LC50, water flea *Daphnia magna*, 48 h: 1.7 mg/l

## 13. Disposal Considerations

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

**14. Transport Information****ROAD & RAIL****Proper Shipping Name:** Environmentally hazardous substance, liquid, n.o.s. (Diphenyl oxide)**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III**Classification:** M6**Kemler Code:** 90**Tremcard Number:** 90GM6-III**Environmental Hazard:** Yes**OCEAN****Proper Shipping Name:** Environmentally hazardous substance, liquid, n.o.s. (Diphenyl oxide)**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III**EMS Number:** F-A,S-F**Marine pollutant.:** Yes**AIR****Proper Shipping Name:** Environmentally hazardous substance, liquid, n.o.s. (Diphenyl oxide)**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III**Cargo Packing Instruction:** 914**Passenger Packing Instruction:** 914**Environmental Hazard:** Yes**INLAND WATERWAYS****Proper Shipping Name:** Environmentally hazardous substance, liquid, n.o.s. (Diphenyl oxide)**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III**Classification:** M6**Kemler Code:** 90**Tremcard Number:** 90GM6-III**Environmental Hazard:** Yes

*This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.*

**15. Regulatory Information****US. Toxic Substances Control Act**

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

**Classification and User Label Information****Hazard Symbol:**

N - Dangerous for the environment.

**Risk Phrases :**

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases :**

S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Chemical Name** Diphenyl oxide  
(EC # 202-981-2 )

## 16. Other Information

### Risk-phrases in the Composition section

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### Revision

Identification Number: 56264 / 3050 / Issue Date 2010/03/10 / Version: 2.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

### Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation

*Dow Europe GmbH urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.*